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ABSTRACT

Although there is no fixed definition of youth apprenticeship, a consensus is emerging on four basic components: student participation, educational content, location of instruction, and credentialing. Except for some recent pilot projects, no youth apprenticeship programs in the United States have all four components, but educators have some experience with each component. German youth apprenticeship systems avoid many problems that plague U.S. education, but philosophical and practical differences cause problems with an analogy between the two countries. Four school-to-work programs in the United States share some features with youth apprenticeship: agricultural education, cooperative education, career academies, and tech prep. An assessment of how the four components of youth apprenticeship work in these four program models shows that, first, although many programs have expanded their enrollments beyond at-risk youth or traditional vocational education students, two negative tendencies emerge: programs tend to become internally differentiated and perpetuate the divisions between types of students and college-bound students are only tenuously involved. Second, efforts to integrate academic and vocational content remains limited. Third, none of the four models even approaches the transformation of workplaces into integral parts of the basic education system. Fourth, credentialling is currently ad hoc. (Conains 10 references.) (YLB)

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YOUTH APPRENTICESHIP: LESSONS FROM THE U.S. EXPERIENCE

Thomas Bailey and Donna Merritt

As an effort to meet the needs of young people who are not college-bound, youth apprenticeship has attracted a great deal of favorable attention.

Youth apprenticeship, as the term is used here, is *not* an expansion of the apprenticeship system, currently practiced in the U.S., that serves the labor supply needs of specific occupations. Although there is no fixed definition of youth apprenticeship, a consensus is emerging on four basic components:

- it is designed to be an integral part of the basic education of a broad cross-section of students.
- it integrates academic and vocational instruction.
- a significant part of an apprentice's education takes place on the job and is coordinated with classroom instruction.
- students emerge from their apprenticeships with recognized and accepted credentials.

Except for some recent pilot projects, no youth apprenticeship programs in this country have all four components, but educators have some experience with each component. We therefore assessed the feasibility of each of these components as they work in U.S. schools today. While it can be misleading to predict the effects of a program by examining its components individually, much can be learned from this analysis: Barriers to the implementation of a component very likely will remain when the components are combined.

Why the Interest?

Interest in apprenticeship as the basis for educational reform arose from the diagnosis of the weaknesses of U.S. education, from the perception that European apprenticeship systems avoid many of these problems, and from a growing body of research in the U.S. on the educational advantages of integrating school instruction with nonschool experiences at work.

The noncollege-bound often drift from one unskilled job to another, learning no skills, and working mainly with other nonskilled young people. This system wastes time, delays maturity, and offers training—when it is offered—that is haphazard and in most cases does not result in any recognized credentials or certification.

German youth apprenticeship systems avoid most of these problems. On-the-job training occurs under the supervision of certified trainers, and the curricula are supervised by quasi-public employer organizations that include representatives of unions and schools. Apprenticeships provide a credential that is recognized throughout the country. Adolescents are quickly moved into the workplace, where they work with mature role models, acquire relevant workplace skills, and are socialized into the nonschool world, learning how to be effective and mature workers and learners.

Problems with the German Analogy

German apprenticeships are embedded in a system that tracks students into explicit career paths, a notion that is anathema to U.S. education reformers. In contrast to the U.S., German unions play a central role in the labor market and the apprenticeship system. Again, unlike the U.S., many companies in Germany have a long-term perspective on their employees' tenure and therefore are willing to absorb much of the cost of on-the-job training. There are no uniform, nationally accepted certification standards in this country as there are in Germany.

Our analysis, therefore, is based on four school-to-work programs in the U.S. that share some features with youth apprenticeship—agricultural education, cooperative education, career academies, and tech prep.

Four School-to-Work Models in the U.S.

1. *Agricultural Education.* Students receive hands-on, practical work experience from local employers and community members, building on an applied academic education in the classroom. The distinctive feature of agricultural education is the socialization students receive into the world of work through auxiliary activities such as 4-H and Future Farmers of America (FFA). These activities, which have become almost as much a formalized part of their education as the classroom, give students opportunities to practice their skills and demonstrate their knowledge to peers and future employers. These auxiliary programs are particularly effective in teaching leadership and personal development skills (Gore, 1988).

2. *Cooperative Education.* Co-op education is not standardized, but high school co-op students usually spend the morning in academic classes recommended and approved by a school co-op coordinator and the afternoon in a job for which they get paid and also receive high school credits toward graduation. Most co-op programs provide no workplace credentials for participation. The rewards are early workplace exposure, wages, and a high school diploma upon completion.

3. *Career Academies.* Academies are organized as schools within schools. The idea is to create a small learning community to foster long-term relationships between students and teachers and create a peer culture that supports aspiration and achievement. Each academy has a particular vocational, occupational, or industrial theme. Within that theme, the academy provides a structured program blending applied academics, workplace exposure, and career counseling. Local employers serve as advisers and mentors and provide job placements and internships for students and graduates.

4. *Tech Prep.* The central concept of tech prep is the articulation of secon-

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dary school with community college programs in occupational areas. It usually involves the coordination of curricula during the last two years of high school and the first two years of community college, with a common core of required proficiency in mathematics, science, communications, and technology. The programs lead to an associate degree or a certificate in a career field. Tech prep programs offer broad preparation for a cluster of occupations. Sometimes a work component is included, and some programs provide for employment during summers. Employers provide job placements and serve as advisers for the design and implementation of the programs.

We now assess how the four components of youth apprenticeship work in these four program models.

Component 1: Student Participation.

If youth apprenticeship is to have a realistic chance of widespread acceptance in this country, it must prepare a broad segment of the population and include college-bound students. However, increased focus on the college-bound creates the risk of an admissions process that excludes less accomplished students. A central question, then, is whether it is possible to develop a youth apprenticeship system that finds a middle ground between the stigma of a "second-best" track and the restrictiveness of a selective program for the best students.

Among current school-to-work models, *tech prep* programs come closest to breaking the barriers between traditional vocational and academic students. Although tech prep programs preserve the distinction between students headed for community college and those bound for four-year degrees, they nonetheless increase the postsecondary education opportunities for a broader group of students.

Agricultural education has also had some success in reaching a wide range of students, at least within the agricultural community. Because the family-owned farm has given way to large, specialized, high-tech, corporate farming operations, youth are more likely to end up in production support positions than as owners/operators. This fact has forced agricultural vocational schools to recruit nontraditional students and provide programs where the agricultural/vocational component is often peripheral to the academic component.

Cooperative education programs that carry the negative stereotype of vocational programs have fewer applicants (U.S. General Accounting Office, 1991). Most programs, however, have admission standards: an average GPA of at least 2.0, good attendance, a positive attitude, and a lack of disciplinary problems, in addition to specific employer requirements. Nonetheless, co-op students tend to come from lower socioeconomic levels and to have lower than average test scores.

While high school co-op seems closely linked with the perception of vocational education, there is a strong tradition of co-op-like education at four-year colleges. Many engineering students, for example, participate in co-op programs. The acceptance of the co-op approach for advanced professional training is evidence that a similar approach might have appeal beyond students traditionally attracted to vocational education.

The *career academy* movement originally targeted youth who lacked academic and occupational focus, but many academies have broadened their mission to prepare students for college as well as full-time employment. Successful academies attract more applicants, increasing competition for placement in the program, and, in some cases, resulting in pressure to raise admission standards. Nevertheless, most academies still target students who have not excelled in a conventional school environment and who are unlikely to have plans to attend a four-year college.

Component 2: Educational Content.

The logic of a youth apprenticeship system points to an emphasis on broad conceptual, problem-solving skills. But where does this leave the actual preparation for jobs? Is it possible to develop a curriculum that combines both academic and vocational components without sacrificing the quality of either the vocational or the academic component?

The *tech prep* and *academy* models try to combine academic and vocational instruction, using applied coursework to provide a conceptual framework. This approach builds on the cognitive science finding that students learn more effectively if the barriers and distinctions between in-school learning and out-of-school activities are broken down (Raizen, 1989; Berryman and Bailey, 1992).

The academic portion of most tech prep programs is similar to college prep programs; each prepares students for postsecondary instruction, albeit in different types of institutions. In Canton, Ohio, tech prep students take a series of high-level applied "tech" courses (Tech Math, Tech Chemistry, Tech Physics, and 20th-Century Literature and Composition) that connect abstract knowledge to workplace applications.

Usually, *co-op education* students attend traditional academic and vocational classes with non-co-op students. As a result, integration depends primarily on the co-op coordinator/counselor. But coordinator responsibilities are added to teaching duties, and the counselor is typically responsible for the recruitment of students and the supervision of 50 to 60 students' classroom and workplace instruction. In addition, the counselor is the liaison between the school and the employer.

Unsurprisingly, integration of co-op students' school and worksite learning varies widely and is often haphazard. Indeed, the benefits of the co-op experience are seen to lie in strengthened work habits and in greater maturity and employability rather than in supporting academic learning.

Because of radical changes in the industry, *agricultural education* courses have more academic content, and students are now required to take physics, engineering, and chemistry (Rosenfeld, 1983). Aside from these changes, the integration of coursework and practical learning experiences has always been a strong element of agricultural education, with a focus on behavioral and leadership skills.

Student organizations such as Future Farmers of America and 4-H are integral parts of the process. In these organizations, students learn leadership and technical skills in a manner that reinforces management training, problem-solving skills, goal-setting, and achievement based on group as well as individual performance.

In most agriculture programs, students are required to set up and run their own businesses (McCormick, 1988), and they are encouraged to explore fields of study beyond agriculturally oriented subject matter. As a result, students graduate with solid experience not only in their area of specialization but also in peripheral disciplines.

Component 3: Location of Instruction.

In apprenticeship, the workplace is supposed to be the learning place, not simply an environment where students gain practical experience and specific job skills. How can the workplace be used as a place of instruction? What will motivate employers to participate? How can the quality of employer instruction be assured? Does workplace learning complement and enhance the learning that takes place in the classroom?

Employer participation. In the U.S., the high rate of turnover among young workers might discourage employers from investing in apprenticeship. Although research indicates that training increases the tenure of employees (Mincer, 1988), a large-scale apprenticeship program would have to involve employers who may not have enough job openings to hire all of their graduating apprentices.

Reducing the cost to employers through lower training wages or direct subsidies has not proved effective. In one instance, less than one-fifth of private employers were willing to take on demonstration youth even at a zero wage (Ball and Wolfhagen, 1981), apparently believing that the young people would not contribute enough to justify the effort to supervise them.

The workplace as a learning place. There is growing disillusionment with the quality of learning on the job. The vast majority of U.S. employers remain firmly committed to traditional production processes that depend on low-wage, low-skilled workers. Even if such employers could be convinced to take on young apprentices, the quality of education students would receive in these settings is questionable.

Programs that simply place young people on the job to gain work experience are not effective. The quality of on-the-job training is heavily dependent on who happens to be around to provide the training. In work groups with high turnover, "almost novices" train actual novices, a situation that violates models of good apprenticeship training (Scribner and Sachs, 1990).

Education programs. All four school-to-work programs discussed in this brief fall short in effectively using the work site as a learning environment where students are taught by employers. Few programs require participating employers to teach, settling instead for the presumed benefits of students' exposure to an actual workplace.

Agricultural education has successfully incorporated activities in 4-H, Future Farmers of America, and Supervised Occupational Experiences (SOEs) into students' educational experience. SOEs are 12-month projects outside the classroom that give students actual work experience, develop their applied skills in basic math and science and in technical agriculture, and link them to the larger agricultural community and, thus, to potential employers.

In many *tech prep* programs the links to employers are tenuous, rarely going beyond employer participation in the development and design of the program. The fundamental characteristic of tech prep remains articulation between the high school and the community college, not instruction on the job.

Similarly, *career academies* have promoted educator/employer collaboration but have not developed the workplace as an instruction site. Employers are heavily involved in the academies, and student employment experiences are well-paying, substantive opportunities. But the nature of the learning that takes place in the workplace is still not well understood.

Unlike the other programs, *co-op education* is based in the workplace. Unfortunately, we know very little about the quality of job placements in co-op education or about the quality of the learning that takes place in these jobs.

Component 4: Credentialing.

The diverse goals of apprenticeship create problems for credentialing. How specific or narrowly defined should the certified skills be? Should graduate apprentices be considered skilled craft workers or given more general certification, something like a diploma from a high-quality secondary school?

Of the programs described in this brief, some *tech prep* efforts have gone the furthest in addressing the need for credentials. In 1990, the American Technical Education Association (ATEA) established national minimum standards for all tech programs (McGrath, 1991). In many states, these standards have been integrated into the tech prep curriculum.

Competency-based curricula have not been as extensively developed in the *academies*, which rely more on informal contact with participating employers.

Agricultural education has started to develop assessment and credentialing tools, and competency-based courses have been developed in many places.

The *co-op education* system lacks any specific certification procedures. Co-op programs rely on soft credentials such as letters of recommendation from employers. Further, the establishment of training standards is but a vague goal for most co-op programs.

Conclusion

Student Participation. Although many programs have expanded their enrollments beyond at-risk youth or traditional vocational education students, two negative tendencies emerge:

Programs that serve a wide variety of students tend to become internally differentiated, perpetuating the divisions between types of students.

Students preparing for college are only tenuously involved. And, with the exception of some agricultural programs, when programs reach out to

college-bound students, less academically oriented students tend to be excluded.

Educational Content. Efforts to integrate academic and vocational content remain limited. Still conceptualized as a reform of vocational education, the integration strategy has barely penetrated traditional academic and college prep programs. Moreover, the trend toward integration remains primarily in the classroom, and very little is known about how the workplace can be used most effectively in this strategy.

Location of Instruction. The apprenticeship model calls for the transformation of workplaces into integral parts of the nation's basic education system. None of the four school-to-work models that we have examined even approaches that level of employer involvement.

If youth apprenticeship is to become a reality, we must address the issues of both employer participation and on-the-job pedagogy. The two issues are closely linked. If employers need to be cajoled into participating, educators lose their leverage to demand improvements in the educational experiences that employers offer apprentices. It is likely that the interests of the employer will in many cases diverge from its apprentices. If this is true, the market will not offer incentives for firms to search out the best educational strategies.

Credentialing. Credentialing at this time is ad hoc. The value of a particular diploma or certificate depends almost entirely on the reputation of the educational institution that conferred it. A number of state and local efforts are under way to develop competency standards and assessments, but little progress has been made in the development of nationwide methods to standardize certification.

The more narrowly defined the occupational goals of a program, the easier it is to develop standards and credentials; as programs move toward a model such as youth apprenticeship in which occupational training is used to provide a broad foundation, credentialing becomes more problematic.

Development of a large-scale youth apprenticeship system in which a significant part of the learning takes place on the job is a long way off. Schools should continue trying to strengthen relationships with employers, but they have to recognize that employer interests may not coincide with providing the best educational experience for students. There is no escaping the need for an appropriate set of institutions to regulate workplace education.

Despite the obstacles, efforts to adopt youth apprenticeship are extremely important. Many of the reforms associated with apprenticeship—efforts to break down the distinctions between learning and working, school and community, academic and vocational, and college-bound and non-college-bound students—can make fundamental contributions to the overall improvement of education.

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